

What is claimed is:

1. A collimator device for a nuclear imaging camera, comprising:
a grid of collimation square holes formed by a plurality of sheets
arranged in a grid pattern, each of said sheets having evenly spaced slots into
5 which other sheets are inserted;

optically reflecting material coating at least a portion of the surfaces of
said sheets forming said grid of said collimation square holes; and
pixellated scintillators individually located in each of said collimation
square holes.

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2. The device of claim 1, wherein said optically reflecting material
maximizes light intensity of pixellated scintillators events.

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3. The device of claim 1, wherein said pixellated scintillators are
scintillation crystals.

4. The device of claim 1, wherein said pixellated scintillators have a
square-shaped configuration.

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5. The device of claim 1, wherein said plurality of sheets are formed of
a material having a high density.

6. The device of claim 5, wherein the high density material is tungsten.

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7. The device of claim 5, wherein the high density material is lead.

8. The device of claim 1, wherein the reflecting material is TiO₂.

9. The device of claim 1, wherein the reflecting material is MgO.

10. A scintigraphic device, comprising:
 - a collimator device including
 - a grid of collimation square holes formed by a plurality of sheets arranged in a grid pattern, each of said sheets having evenly spaced slots into which other sheets are inserted;
 - optically reflecting material coating at least a portion of the surfaces of said sheets forming said grid of said collimation square holes; and
 - pixellated scintillators individually located in each of said collimation square holes; and
 - a detector coupled to said pixellated scintillators and operable to detect radiation emanating from an object and interacting with said scintillators after passing through said collimator device.
- 15 11. The device of claim 10, wherein said optically reflecting material maximizes light intensity of pixellated scintillators events.
12. The device of claim 10, wherein said pixellated scintillators are scintillation crystals.
- 20 13. The device of claim 10, wherein said pixellated scintillators have a square-shaped configuration.
14. The device of claim 10, wherein said plurality of sheets are formed of a material having a high density.
- 25 15. The device of claim 14, wherein the high density material is tungsten.
- 30 16. The device of claim 14, wherein the high density material is lead.

17. The device of claim 10, wherein the reflecting material is TiO₂.
18. The device of claim 10, wherein the reflecting material is MgO.
- 5 19. A method of forming a collimator device, comprising:
 - forming a plurality of evenly spaced slots across a longitudinal direction of a plurality of sheets;
 - arranging said plurality of sheets in a grid pattern by inserting a sheet into each of said slots and thereby forming a grid of collimation square holes;
 - 10 coating at least a portion of the surfaces of said sheets forming said grid of said collimation square holes with an optically reflecting material; and
 - inserting pixellated scintillators into each of said collimation square holes.
- 15 20. The method of claim 19, wherein said optically reflecting material maximizes light intensity of pixellated scintillators events.
- 20 21. The method of claim 19, wherein said pixellated scintillators are scintillation crystals.
22. The method of claim 19, wherein said pixellated scintillators have a square-shaped configuration.
- 25 23. The method of claim 19, wherein said plurality of sheets are formed of a material having a high density.
24. The method of claim 23, wherein the high density material is tungsten.
- 30 25. The method of claim 23, wherein the high density material is lead.

26. The method of claim 19, wherein the reflecting material is TiO₂.

27. The method of claim 19, wherein the reflecting material is MgO.

5 28. A building block for forming a collimator device of a nuclear
medical imaging camera, comprising an elongated sheet of metallic material
having a thickness suitable for functioning as septa of said collimation device,
and having a plurality of evenly spaced slots into which other elongated
sheets are inserted in order to form a grid pattern of collimation holes into
10 which pixellated scintillators are placed.